The Dirt on New Federal Requirements for Soil Fumigants

Summary of 2010/11
Label Requirements

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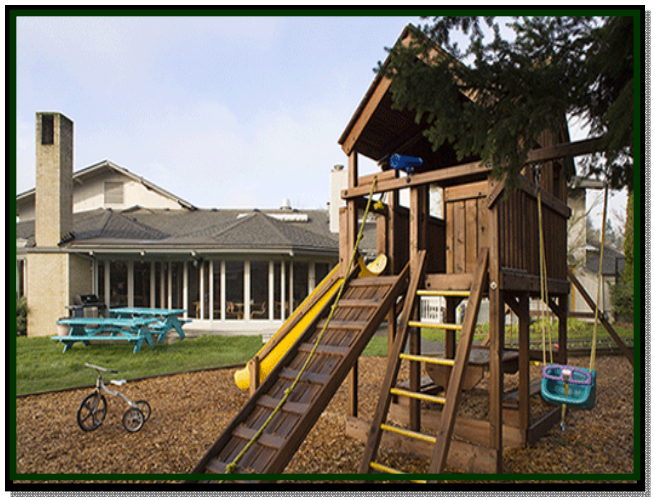
Soil Fumigants Impacted

- **Re-licensing decisions for chemicals used as soil fumigants**
  - **Methyl Bromide**
  - **Chloropicrin**
  - **Metam Sodium/Metam Potassium**
  - **Dazomet**

  ***1,3-Dichloropropene with Chloropicrin -Telone**

Why We Did What We Did

- New human and animal toxicity studies
- Risk modeling techniques
- Incidents
- Congress



How We Did Exposure Assessments

- Monitoring studies
  - Concentrations measured in/around fields and within handler breathing zone
- Modeling
  - Predict concentrations under different weather and field conditions
- Information from exposure incidents
  - Effects observed are consistent with risk assessment predictions
  - Causes of exposure/What happened

Incidents

- **Low frequency of incidents relative to number of applications however…**
  - **severe effects can occur**
  - **major incidents involved many people**
  - **under reporting may occur (people offsite less likely to connect symptoms with pesticides)**
  - **equipment failure, applicator error, weather are primary factors**

Implementation Timeline

- **December 2010/Spring 2011**
  - **First phase of revised labels enter channels of trade**
    - No product bearing previously approved labeling may be **sold or distributed (release for shipment) by its registrant after December 31,2010.**
  - **EPA conducts training and outreach**
  - **Registrants ramp-up for second phase of label changes**
- **Late 2011/2012:**
  - **Second phase/full implementation of new fumigant label requirements implemented**
- **2013:**
  - **EPA begins re-evaluation of soil fumigants under the Registration Review program**

Mitigations - 2010

- **Good Agricultural Practices (GAPs)**
  - many already on labels
  - mandatory
  - improve safety & efficacy
  - developed by registrants, growers/applicators, EPA
  - must document to show compliance

GAP Label Statement

"The following GAPs must be followed during all fumigant applications."

"All measurements and documentation to ensure the mandatory GAPs are achieved must be recorded in the FMP and/or the post-application summary."

Examples of GAPs

Soil moisture

- Ex: Soil must be moist 9” below surface for M-B and Chloropicrin
- Use USDA’s Feel and Appearance Method or an instrument

Soil preparation
Soil Temperature
Calibrate, maintain, and clean equipment
Prevent end-row spillage

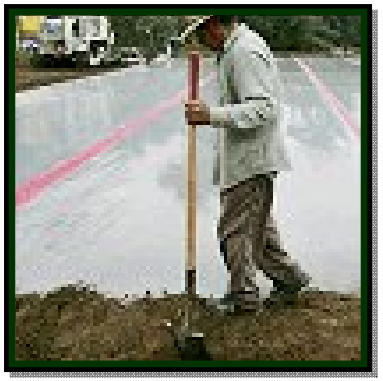
Photos courtesy of USDA NRCS

Example of Application Specific GAPs

Tree Plant

- Before Application
  - Remove
    - Tree stump
    - Primary root system
    - Backfill the hole with soil
- After Application
  - Cover with soil and tamp, or
  - Compact soil

Handler Activities Include:

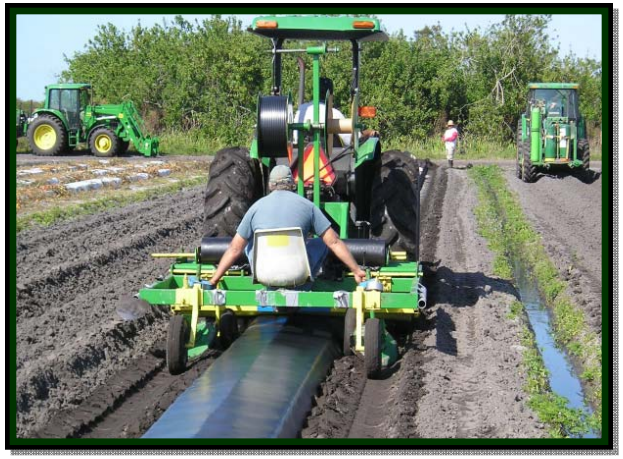


No Changes – Clarification only

- **Participating in the application**
  - **as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application activities);**
- **Installing, repairing, operating, or removing irrigation equipment in application block or buffer zone;**
- **Installing, perforating, removing, repairing, or monitoring tarps;**
- **Using air sampling devices to monitor fumigant concentrations;**
- **Cleaning up fumigant spills;**
- **Handling or disposing of fumigant containers;**
- **Cleaning, handling, adjusting, or repairing parts of equipment;**
- **Entering application block or buffer zone to perform scouting, crop advising, or monitoring tasks;**
- **Performing any handling tasks as defined by the Worker Protection Standard.**

Fumigant Safe Handling Information

- Registrants must develop and disseminate basic safety information for handlers



- Must include:
  - safe handling
  - respiratory protection
  - early signs of exposure
  - response in case of exposure or emergency
- Supervisors required to ensure handlers have received information within the last year
- Available on EPA website or at point of sale

Supervision of Handlers

Non-water run applications (e.g., shank, hot gas)

- **"Certified applicators must be at the fumigation site in the line of sight of the application and must directly supervise all persons performing handling activities"**

Water run applications (e.g., center pivot, drip)

- **Certified applicator must be at site to begin the application**
- **Certified applicator or handlers under supervision of certified applicator must return every two hours to check on application**
- **Handlers communicate with certified applicator via cell phone or other means**

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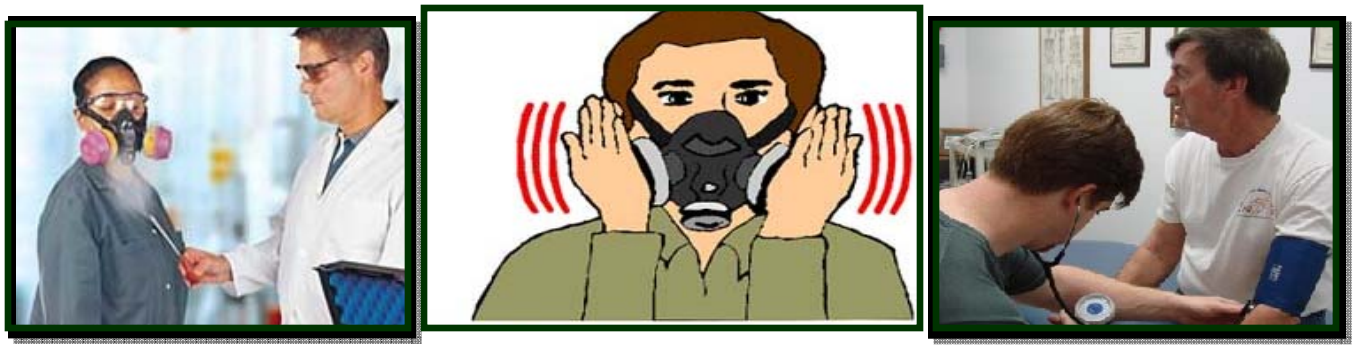
Handler Respiratory Protection

- Air purifying respirators required for methyl bromide with < 20% chloropicrin.
- Must be fit-tested, trained and determined to be physically fit for respirator use
- Must be on site and available for use



Stop Work Triggers

If experiencing sensory irritation, handlers must either:

1. **Stop work, leave area & monitor**
   - Resume work when concentrations below trigger level & irritation is gone

   OR

2. **Wear a respirator & resume work**
   - Measure air concentration every 2 hours
   - Stop work if having sensory irritation while wearing respirator or measured concentration exceeds upper limit of respirator

Entry Restricted Period

- Old labels allow worker reentry after 48 hours
- Reentry time lengthened
  - Highly variable fumigant dissipation rate (soil conditions, application method, tarp type) so could still have high concentrations after 48 hours
- Minimum reentry is 5 days
  - Properly equipped handlers ok, no worker reentry
  - Actual re-entry varies based on applic. methods

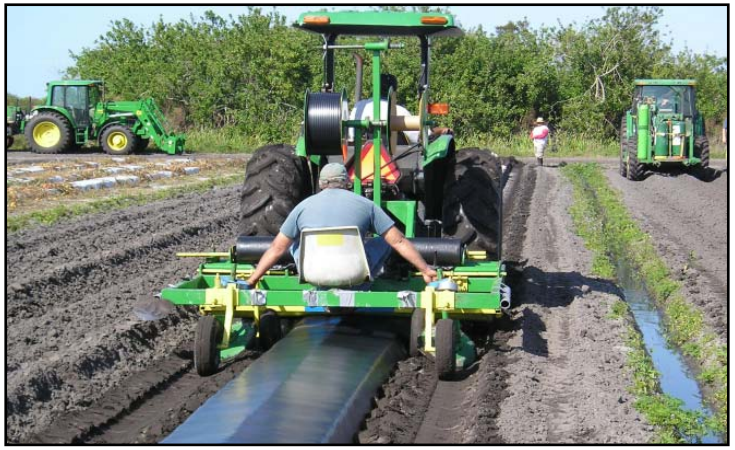
Entry Restricted Period ≠ REI

Four Scenarios for Entry Restricted Periods

Untarped

Tarped – Broadcast application

Tarped – Bedded. Perforate but not removed within 14 days



Tarped – Bedded. Perforated and/or remove after 14 days

Entry Restricted Period by Scenario

If application is…	*and* tarp is…	_____ days after application is completed	workers may enter…
1. Untarped	-	-	5 days after application is complete
2. Tarped	Perforated & Removed	within 14 days	5 days, then after tarp is removed
3. Tarped	Perforated BUT Not Removed	within 14 days	5 days + 48 hours after perforating
4. Tarped	Perforated and/or Removed	more than 14 days	5 days after application is complete

Tarp Perforation and Removal

Perforation

- **Minimum 5 days after application is complete (was 48 hours)**
- **Mechanical perforation required, except**
  - At the beginning of each row when a coulter blade is used on a motorized vehicle
  - In fields that are 1 acre or less
  - During flood prevention activities

Removal

- **2 hours after perforation is complete**

Planting

- **Less than 14 days after application**
  - wait 48 hours after tarps perforated
- **14 days or more after application**
  - Perforate and plant simultaneously

Exceptions

- **Early perforation (before 5 days) for flood prevention**
  - tarps must be retucked and packed after soil removal

- **Early removal (before 5 days) <u>for broadcast applications only</u>**
  - **if weather or wildlife compromise tarp integrity and it is a safety hazard**

Re-registration Outcomes: Mitigations

2010/11 Implementation

- ✓ RUP classification for all soil fumigation products
- ✓ Rate Reductions & Use limitations
- ✓ Required Good Agricultural Practices
- ✓ Handler respiratory protection
- ✓ Training information for workers
- ✓ Reentry restrictions
- ✓ Tarp perforation and removal restrictions
- ❑ **Fumigant Management Plans (FMPs)**